Alien DNA Extraction activity

\*\*2 teaspoons clear shampoo

\*\*2-3 pinches table salt (non-iodized)

\*\*4 teaspoons water (tap or bottled)

1 pinch meat tenderizer (not seasoned)

1 Tablespoon 91% ice cold isopropyl rubbing alcohol

Chopsticks or toothpicks

Blender for pureeing fruit

2 plastic cups

1 spoon

Coffee Filters

Fruit (bananas or strawberries are ideal)

Measuring cups

Safety glasses

DNA Extraction Directions:

1. In cup #1, mix together the ingredients marked by the symbol \*\* for 3 minutes. Avoid creating bubbles when mixing.
2. Add 1 pinch of meat tenderizer. Mix for 1 minute or until dissolved. Set aside.
3. In blender, blend fruit, adding water until it has the consistency of a smoothie.
4. In cup #1, add 2 tablespoons of fruit puree to the shampoo solution. Gently mix with a spoon for 4 minutes. Avoid creating too much foam. Save the remaining fruit puree in the blender container for a smoothie (step 8).
5. Trim the coffee filter and place into cup #2. Do not allow the filter to touch the bottom of the cup. Fold the edge of the filter over the cup.
6. After 4 minutes of mixing gently, pour mixture from cup #1 into coffee filter of cup #2. Filter the mixture until the liquid covers the bottom of the cup (approximately 1 teaspoon).
7. Pour rubbing alcohol into the filtered solution from cup #2. After a few minutes, two layers will form – do NOT mix these layers! (while waiting, start cleaning up). The white “glob” foaming in the solution is DNA! Use a chopstick or toothpick to carefully “spool” out the DNA strand.

Questions:

1. List 3 things you know about DNA.
2. What is the function of DNA?
3. Describe the structure of DNA (hint: its backbone and base pairs).
4. How many genes have been identified in the human genome? How many base pairs are found in a typical human cell?